AIWA®

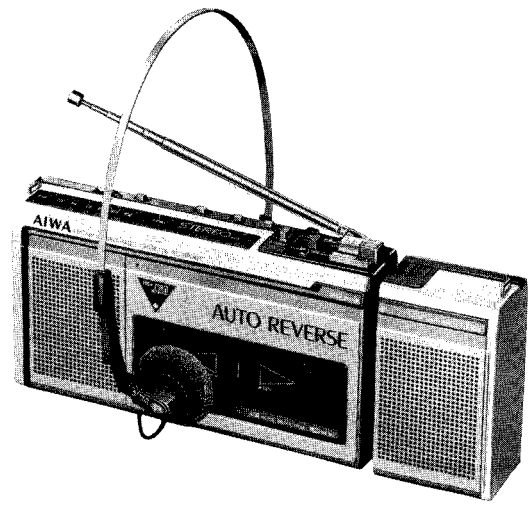
S/M Code No. 83-025
DATE OF ISSUE 8/1983

SERVICE MANUAL

FM/AM STEREO RADIO CASSETTE RECORDER

MODEL NO.

HS-J110



TYPE. Y

SPECIFICATIONS

< GENERAL >

Semiconductors:	5 ICs, 22 transistors, 6 diodes, 2 LED's
Power source:	Batteries, DC 4.5V R6 (LR6, AA) x 3 Household AC power [thru optional AC adaptor (AC-450)]
Dimensions (W X H X D):	Body 163.3(W) x 90(H) x 37.6(D) mm (6-1/2" x 3-5/8" x 1-1/2") With the speaker attached 213(W) x 90(H) x 37.6(D) mm (8-1/2" x 3-5/8" x 1-1/2")
Weight:	Body 535 g (1.2 lbs) (including batteries) With the speaker attached 670 g (1.5 lbs) (including batteries)

< RADIO SECTION >

Circuitry:	Superheterodyne
Frequency range:	FM 87.4 ~ 108.3 MHz AM 520 ~ 1650 kHz
Intermediate frequency:	FM 10.7 MHz AM 468 ± 4 kHz
Sensitivity: (THD 3%)	FM Less than 19 dB (at 88 MHz) Less than 19 dB (at 100 MHz) Less than 24 dB (at 108 MHz)
(S/N 10 dB)	AM 50 $^{+3}_{-4}$ dB (at 600 kHz) 47 ± 4 dB (at 1,000 kHz) 46 ± 4 dB (at 1,440 kHz)
Image rejection:	FM 20 ± 10 dB (at 100 MHz) AM 35 ± 10 dB (at 1,440 kHz)
IF rejection:	FM 60 ± 5 dB (at 94 MHz) AM 45 ± 20 dB (at 600 kHz)
Separation:	20 ± 5dB (at 1 kHz)
Antenna:	FM Whip antenna Head phone antenna AM Ferrite bar antenna

< TAPE PLAYER SECTION >

Track type:	4 tracks, 2 channel
Recording system:	AC bias
Erasing system:	AC erasure
Tape speed:	4.8 cm/s (1-7/8 ips.)
Signal to noise ratio: (Unweighted)	50 ± 5 dB (PB DC/AC) 43 ± 5 dB (OA DC/AC)
Frequency response:	80 ~ 12,500 Hz (NORMAL TAPE) 80 ~ 14,000 Hz (METAL TAPE)
Erasing ratio:	More than 60 dB (at 1 kHz)
Output power:	400 mW + 400 mW (EIAJ/DC)
Distortion:	Less than 2.5% (PB) Less than 8% (OA)
Wow & flutter:	F Less than 0.35% (RMS) R Less than 0.40% (RMS)
Auto stop action time:	1 ± 1 s. (at PLAY)
Pinch roller pressure:	200 ± 20 g (FWD) 170 $^{+20}_{-10}$ g (REV)
Take-up torque:	30 $^{+7}_{-5}$ g-cm
FF torque:	100 ± $^{+30}_{-20}$ g-cm (REV)
Rewind torque:	100 ± $^{+30}_{-20}$ g-cm
Rewind, FF time:	125 ± 20s.
Output:	Headphone jack (3.5φ)
Battery life under continuous use:	Using mangan R6 (equivalent SUM-3, AA) batteries: approx. 3h (EIAJ, recording mode) approx. 4.5h (In the case of EIAJ music playback, Approx. VOL 7) Using alkaline LR6 (equivalent AA) batteries: approx. 7h (EIAJ, recording mode) approx. 10h (In the case of EIAJ music playback, Approx. VOL 7)
Speakers:	30 x 70 mm plate, 4Ω 2 pcs. (Only one speaker is detachable)

< HEADPHONE SECTION >

Type:	Dynamic type
Impedance:	29 ohms
Frequency response:	20 ~ 20,000 Hz
Sensitivity:	107 dB/mW
Maximum input:	100 mW
Cord length:	1.4 meter
Weight:	28 g (without cord)

- The specifications and external appearance of this set are subject to change without prior notice.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of serivce.

1. **No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.**
2. **When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.**
3. **The following matters shall be maintained as they are, when repairing.**
   1) Soldering of lead-wire ends
   2) Wiring and holding of lead-wires with wire-clips and binders
   3) Materials of lead-wires
   4) Location of all kinds of insulators

4. **General instructions for mechanism repair**
   1) The heads, capstan and pinch roller shall be cleaned of good quality alcohol after repaired, because dirty heads shall cause distorted sounds while dirty capstan and pinch roller shall occur wow/flutter and take-up fault.
   2) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
   3) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch roller, especially.
   4) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
   5) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, mulfunction and damage.

☆ **MEMO** ☆

DISASSEMBLY INSTRUCTIONS

1. Removing Rear Cabinet

1) Remove the 7 screws. (See figure 1)

	Part Name	Quantity S	Quantity B
A	VT_2+1.7–6	5	–
	VT_2+1.7–6 (BLK)	–	5
B	V+1.7–3.5 (BLK)	1	1
C	Q+1.7–4	1	–
	Q+1.7–4 (BLK)	–	1

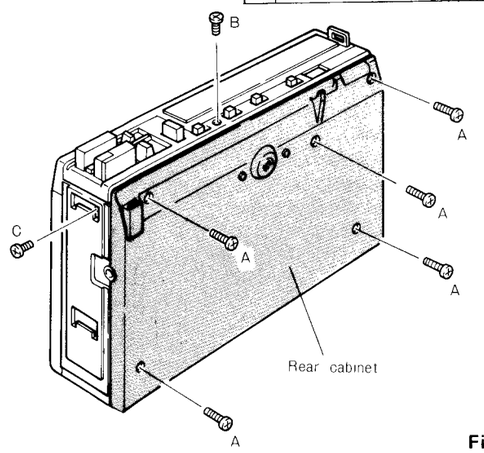


Fig. 1

2. Removing Main Circuit Board

1) Remove the ECM wire and dissolder the battery terminals (+, –). (See figure 2)
2) Remove the 2 screws.

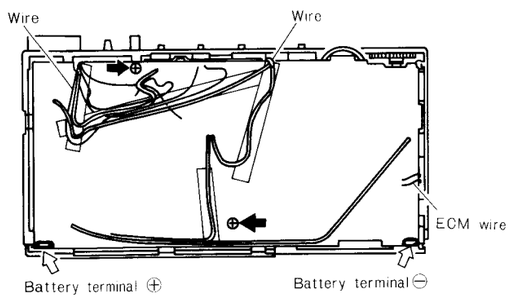


Fig. 2

3) Remove the circuit board by lifting in the direction of the arrow. (The P.V.C. will be detached from the tuning drum, consequently.) Then, disconnect the speaker connector. (See figure 3)

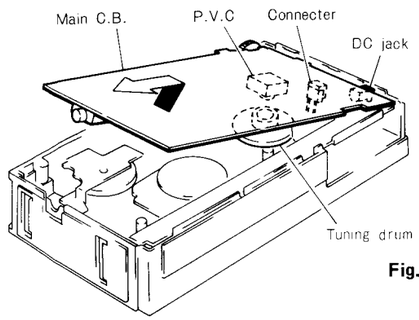


Fig. 3

Note)

When remounting the circuit board, set lead-wires in order. Otherwise, the rear cabinet may not only be closed completely but also lead-wires may be stuck inside, because there is not enough space between the circuit board and the rear cabinet. Meanwhile, attach switches, knobs and LEDs as illustrated. (See figure 4)

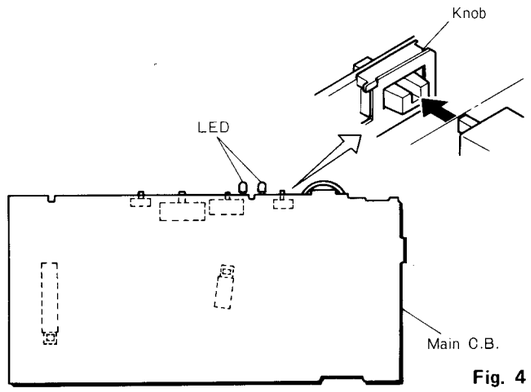


Fig. 4

3. Removing Front Cabinet

1) Removing the rear cabinet. (See figure 1)
2) Remove the 6 screws. (See figure 5)

	Part Name	Quantity S	Quantity B
A	Q+1.7–4 (BLK)	1	1
B	Q+1.7–4.5 (BLK)	1	1
C	V+1.7–3	2	–
	V+1.7–3 (BLK)	–	2
D	VT_2+1.7–5	2	–
	VT_2+1.7–5 (BLK)	–	2

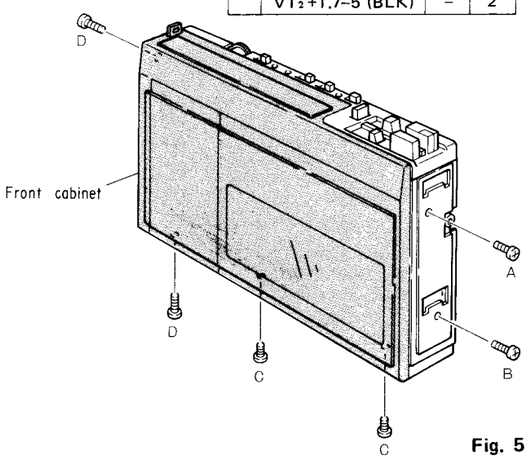


Fig. 5

3) Remove the cassette lid in the direction of the arrow. (See figure 6)

Note)

When remounting the lid, follow the instruction to fit the pawls and studs of cassette lid to the correct positions. (See figure 6)

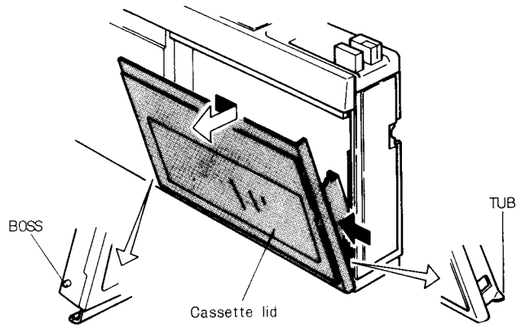


Fig. 6

4) Remove the front cabinet in the direction of the arrow. (See figure 7)

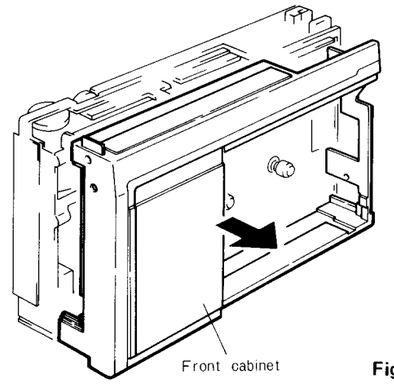
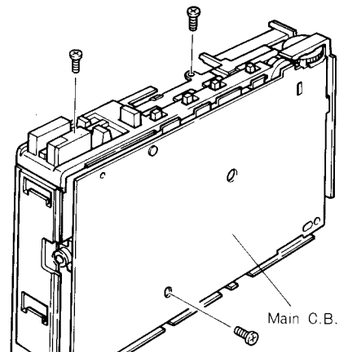


Fig. 7

4. Removing Mechanism

1) Remove the 3 screws. (See figure 8)



Care should be taken not to mismount the screws.

Fig. 8

2) Loosen the lead-wires on the main circuit board to pull out the mechanism in the direction of the arrow. (See figure 8)

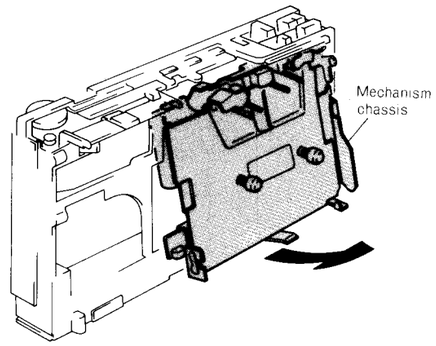
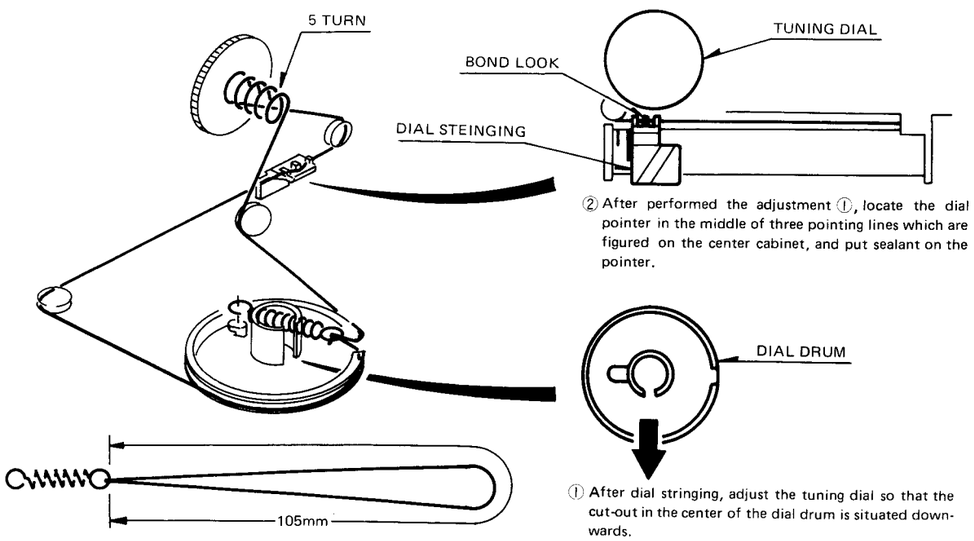


Fig. 9

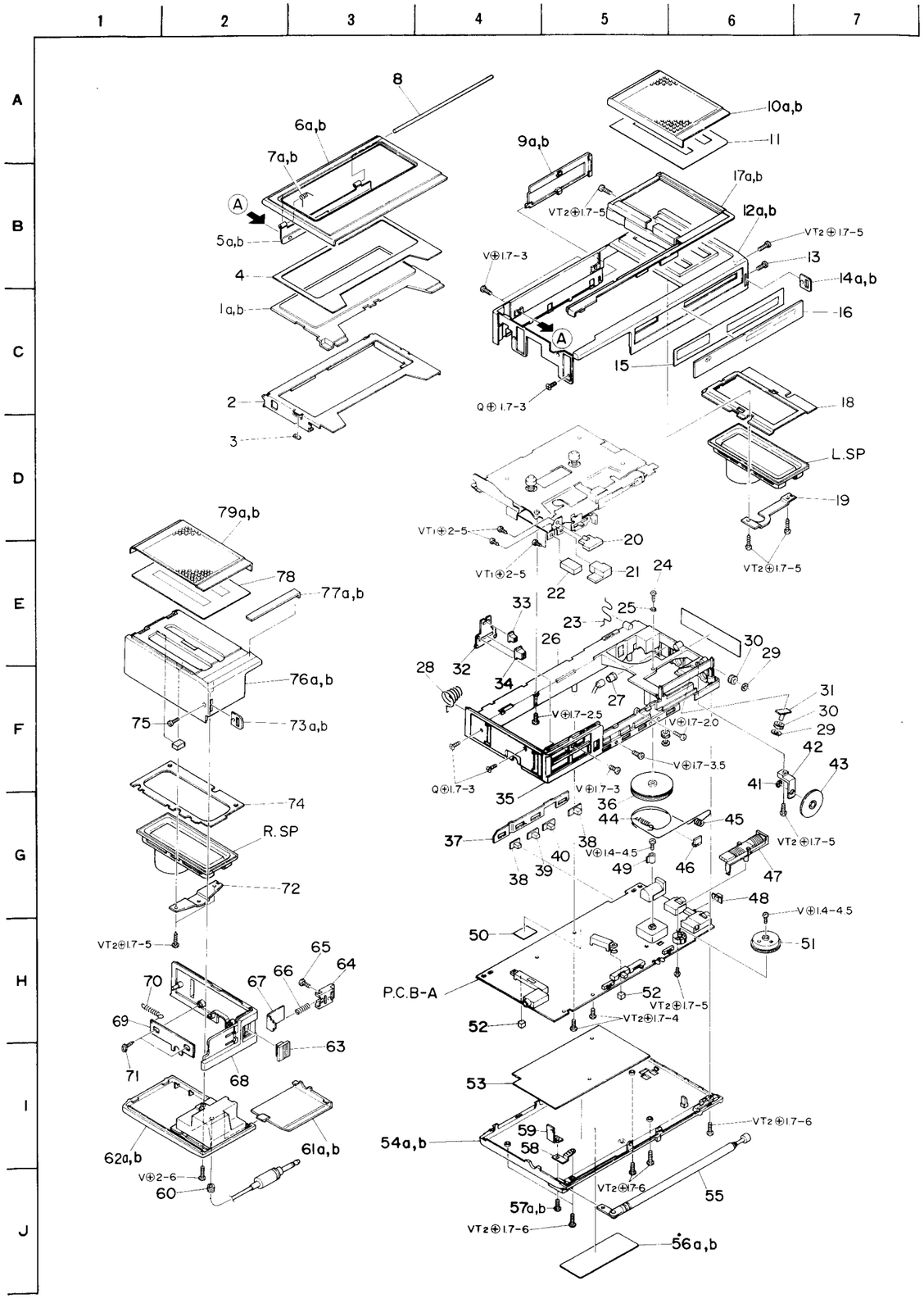
DIAL CORD STRINGING



② After performed the adjustment ①, locate the dial pointer in the middle of three pointing lines which are figured on the center cabinet, and put sealant on the pointer.

① After dial stringing, adjust the tuning dial so that the cut-out in the center of the dial drum is situated downwards.

EXPLODED VIEW-1

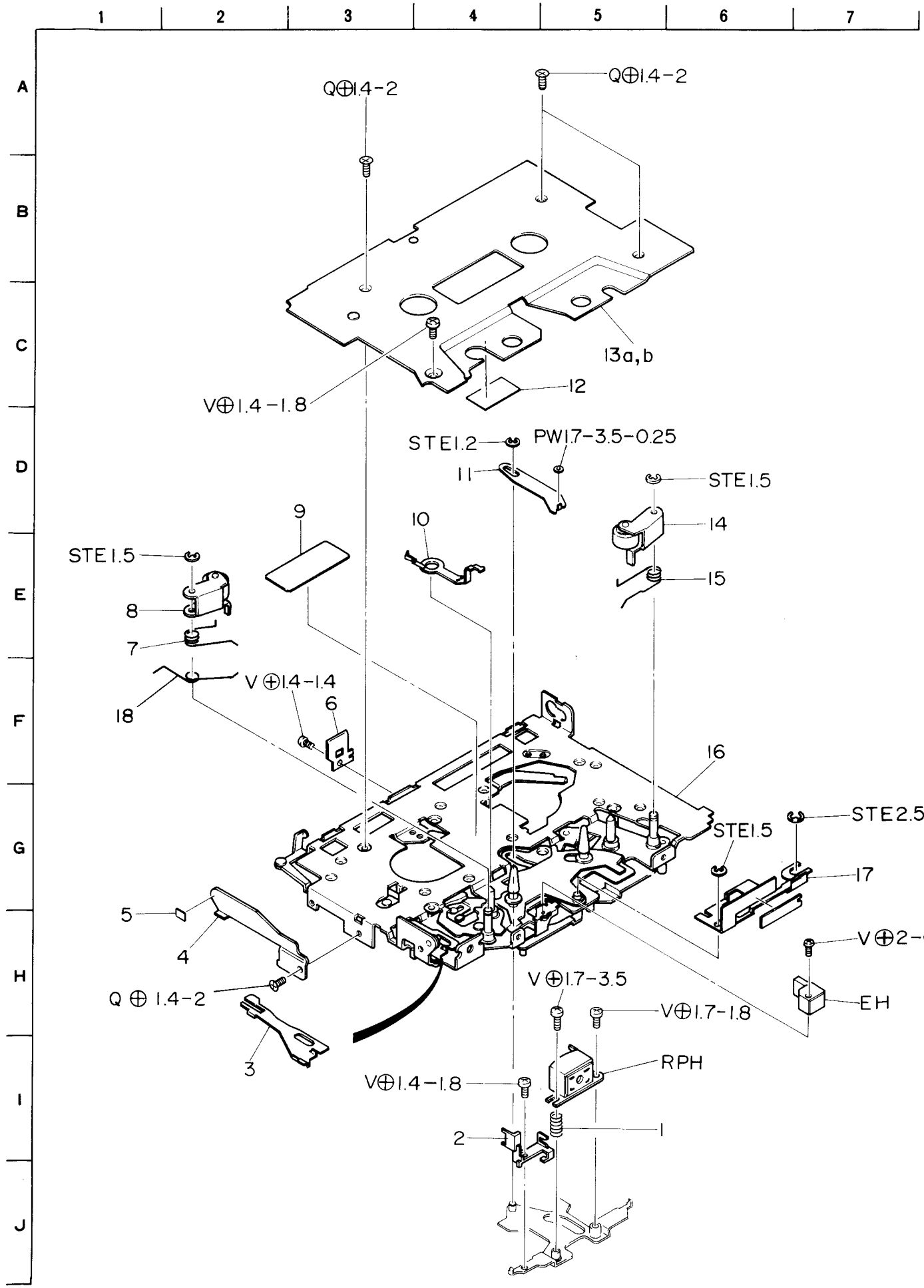


MECHANICAL PARTS LIST

Ref. No.	Part No.	Parts No. changed to	Description	Common Model	Q'ty
1-1a~8	**81-523-090-11**		**Cassette lid ass'y (Y, YU, YG models only)**	*	**1**
1-1b~8	**81-523-105-21**		**Cassette lid ass'y (YB, YUB, YZB models only)**	*	**1**
1-1a	81-523-091-11		Window, Cassette (Y, YU, YG models only)	*	1
b	81-523-111-11		Window, Cassette (YB, YUB, YZB models only)	*	1
1-2	81-523-233-21		Cassette holder ass'y	*	1
1-3	81-523-239-01		S cushion 5-1.5-1	*	2
1-4	81-523-225-11		Adhesive sheet, Window	*	1
1-5a	81-523-013-01		Hinge (Y, YU, YG models only)	*	1
b	81-523-077-01		Hinge (YB, YUB, YZB models only)	*	1
1-6a	81-523-103-01		Lid, Cassette (Y, YU, YG models only)	*	1
b	81-523-106-01		Lid, Cassette (YB, YUB, YZB models only)	*	1
1-7a	81-523-246-01		T-spring, Cassette lid (Y, YU, YG models only)	*	1
b	81-523-202-01		T-spring, Cassette lid (YB, YUB, YZB models only)	*	1
1-8	81-523-201-01		Shaft	*	1
1-9a	81-523-096-01		Lid, Battery (Y, YU, YG models only)	*	1
b	81-523-082-01		Lid, Battery (YB, YUB, YZB models only)	*	1
1-10a~18	**81-523-092-31**		**Front cabinet L ass'y (Y, YU, YG models only)**	*	**1**
1-10b~18	**81-523-107-31**		**Front cabinet L ass'y (YB, YUB, YZB models only)**	*	**1**
1-10a	81-523-006-11		Speaker punching L ass'y (Y, YU, YG models only)	*	1
b	81-523-080-11		Speaker punching L ass'y (YB, YUB, YZB models only)	*	1
1-11	81-523-245-01		Adhesive sheet, Panching	*	1
1-12a	81-523-093-01		Cabinet L, Front (Y, YU, YG models only)	*	1
b	81-523-078-01		Cabinet L, Front (YB, YUB, YZB models only)	*	1
1-13	87-263-525-31		V + 1.7–2.5		1
1-14a	81-523-042-01		Metal fitting, Strap (Y, YU, YG models only)	*	1
b	81-523-049-01		Metal fitting, Strap (YB, YUB, YZB models only)	*	1
1-15	81-523-242-01		Adhesive sheet, Dial window	*	1
1-16	81-523-104-21		Window, Dial	*	1
1-17a	81-523-015-11		Blue panel L (Y, YU, YG models only)	*	1
b	81-523-079-21		Silver panel L (YB, YUB, YZB models only)	*	1
1-18	81-523-218-01		Baffle plate L	*	1
1-19	81-523-220-01		Holder L, Speaker	*	1
1-20	81-523-026-21		Push-button, STOP	*	1
1-21	81-523-025-21		Push-button, PLAY	*	1
1-22	81-523-024-11		Push-button, REC	*	1
1-23~40	**81-523-003-51**		**Center cabinet L ass'y**	*	**1**
1-23	81-523-206-01		Battery terminal (+)	*	1
1-24	87-349-034-01		UT_1 + 2-5		1
1-25	87-081-856-01		W2-6-0.3		1
1-26	81-523-018-11		Cabinet L, Center	*	1
1-27	82-646-217-01		Holder, ECM		1
1-28	81-523-207-01		Battery terminal (–)	*	1
1-29	87-081-464-01		PW1.8-5-0.5		3
1-30	87-071-032-01		Roller		3
1-31	81-523-226-01		Shaft, Roller	*	1
1-32	81-523-228-01		Metal fitting, F-R	*	1
1-33	81-523-045-01		Knob, Select	*	1
1-34	81-503-019-01		Knob, F-R	HS-JO2	1
1-35	81-523-019-11		Panel L, Top	*	1
1-36	82-575-303-31		Drum, Tuning	CS-M11	1
1-37	81-523-212-01		Plate, Slide knob	*	1
1-38	81-523-028-01		Slide knob, PAUSE	*	2
1-39	81-523-029-01		Slide knob, POWER	*	1
1-40	81-523-030-01		Slide knob, Band	*	1
1-41~43	**81-523-222-01**		**Tuning shaft bearing ass'y**	*	**1**
1-41	87-441-009-01		STE-3		1
1-42	81-523-211-01		Shaft bearing, Tuning	*	1
1-43	81-523-020-01		Knob, Tuning	*	1
1-44	82-575-281-01		Drum spring	CS-M11	1
1-45	87-096-095-01		Dial string ϕ0.2		1
1-46	81-523-022-01		Pointer, Tuning	*	1
1-47	81-523-208-11		Holder, Bar antenna	*	1
1-48	82-662-009-11		Slide knob, PAUSE	TP-M9	1
1-49	82-575-304-11		Joint, Tuning drum		1
1-50	81-523-623-01		Shield paper, Motor	*	1

Ref. No.	Part No.	Parts No. changed to	Description	Common Model	Q'ty
1-51	81-523-043-11		Knob, Volume	*	1
1-52	81-523-250-01		Sheet 3-3-2	*	3
1-53	81-523-614-21		Shield paper	*	1
1-54a~59	**81-523-094-41**		**Rear cabinet L ass'y (Y, YU, YG models only)**	*	1
1-54b~59	**81-523-058-51**		**Rear cabinet L ass'y (YB, YUB, YZB models only)**	*	1
1-54a	81-523-095-11		Cabinet L, Rear (Y, YU, YG models only)	*	1
b	81-523-081-11		Cabinet L, Rear (YB, YUB, YZB models only)	*	1
1-55	87-043-072-01		Whip antenna		1
1-56a	81-523-048-01		Name plate, Spec. (Y, YU, YG models only)	*	1
b	81-523-108-01		Name plate, Spec. (YB, YUB, YZB models only)	*	1
1-57a	87-067-095-01		V+2–4 (Y, YU, YG models only)		1
b	87-067-096-01		V+2–4 [Black] (YB, YUB, YZB models only)		1
1-58	81-523-203-11		Terminal plate, Antenna	*	1
1-59	81-523-236-01		Metal fitting, Antenna	*	1
1-60	82-646-218-01		Rubber, cushion	TP-M7	1
1-61a	81-523-099-01		Wire, Lid	*	1
b	81-523-089-01		Wire, Lid	*	1
1-62a	81-523-098-01		Cabinet R, Rear (Y, YU, YG models only)	*	1
b	81-523-088-01		Cabinet R, Rear (YB, YUB, YZB models only)	*	1
1-63~71	**81-523-007-11**		**Slide panel R ass'y**	*	1
1-63	81-523-038-01		Button B, Release	*	1
1-64	81-523-037-01		Button A, Release	*	1
1-65	87-354-531-31		VT_2 + 1.7–5		1
1-66	81-523-229-01		C-spring, Release button	*	1
1-67	81-523-223-01		Metal fitting, Release button	*	1
1-68	81-523-034-01		Panel R, Side	*	1
1-69	81-523-217-01		Slide plate, Jack	*	1
1-70	81-523-230-01		E-spring, Slide plate	*	1
1-71	87-512-033-21		VFT_2 + 2–4		2
1-72	81-523-224-01		Holder, Speaker R	*	1
1-73a~79	**81-523-100-01**		**Front cabinet R ass'y (Y, YU, YG models only)**	*	1
1-73b~79	**81-523-059-31**		**Front cabinet R ass'y (YB, YUB, YZB models only)**	*	1
1-73a	81-523-042-01		Metal fitting, Strap (Y, YU, YG models only)	*	1
b	81-523-049-01		Metal fitting, Strap (YB, YUB, YZB models only)	*	1
1-74	81-523-219-01		Baffle plate R	*	1
1-75	87-261-528-01		V + 1.7 – 3.5		1
1-76a	81-523-101-01		Cabinet R, Front (Y, YU, YG models only)	*	1
b	81-523-085-01		Cabinet R, Front (YB, YUB, YZB models only)	*	1
1-77a	81-523-033-01		Name plate, Decorative (Y, YU, YG models only)	*	1
b	81-523-087-21		Name plate, Decorative (YB, YUB, YZB models only)	*	1
1-78	81-523-227-01		Adhesive sheet, Panching	*	1
1-79a	81-523-032-01		Speaker panching R (Y, YU, YG models only)	*	1
b	81-523-086-11		Speaker panching R (YB, YUB, YZB models only)	*	1

EXPLODED VIEW-2

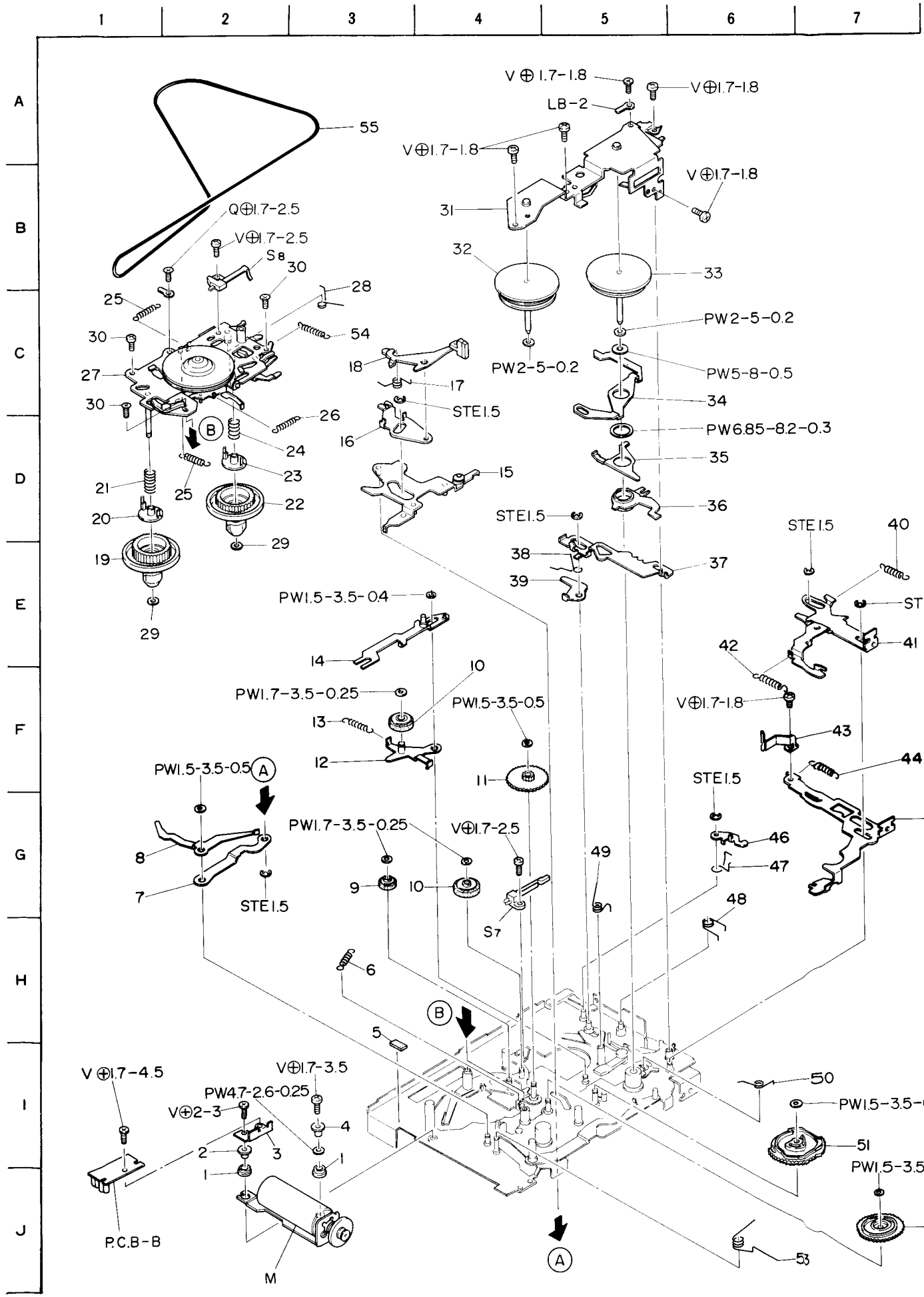


Ref. No.	Part No.	Part No. changed to	Description	Common Model	Q'ty
2-1	81-517-283-01		C-spring, Azimuth		1
2-2	82-668-222-01		Guide, Tape J		1
2-3	82-668-232-01		Eject lever B		1
2-4	81-523-232-11		Holder, Stopper	*	1
2-5	81-523-254-01		Mylar 4—2—0.1	*	1
2-6	82-668-262-01		P-spring, Cassette holder C		1
2-7	82-654-464-01		T-spring, Pinch Roller		1
2-8	82-668-272-11		Pinch lever L ass'y A		1
2-9	82-660-025-01		Label, Tape indication	HS-P02	1
2-10	82-668-243-01		Continuation lever ass'y		1
2-11	81-517-256-01		Selecter amp. arm ass'y		1
2-12	82-585-357-01		Mylar 4—6—0.1		1
2-13a	82-668-257-01		Decorative plate (Y, YU, YG models only)		1
b	82-668-258-01		Decorative plate (YB, YUB, YZB models only)		1
2-14	82-654-315-41		Pinch lever R ass'y		1
2-15	81-517-277-01		T-spring, Pinch roller R		1
2-16	82-668-202-31		Mechanism chassis semi ass'y		1
2-17	82-668-242-01		Indication lever		1
2-18	82-668-264-11		T-spring, Lever return		1

Part No.	Description
87—269—500—31	V+1.4—1.4
87—262—502—31	V+1.4—1.8
87—264—511—31	V+1.4—4.5
87—267—522—31	V+1.7—1.8
87—263—523—31	V+1.7—2.
87—264—525—31	V+1.7—2.5
87—267—527—31	V+1.7—3
87—264—528—31	V+1.7—3.5
87—263—530—31	V+1.7—4.5
87—261—035—21	V+2—6
87—067—089—01	V+2—6.6
87—232—503—31	Q+1.4—2
87—233—525—31	Q+1.7—2.5

Part No.	Description
87—232—527—31	Q+1.7—3
87—351—034—21	VT1+1.7—2.5
87—353—529—31	VT2+1.7—4
87—354—531—31	VT2+1.7—5
87—354—533—31	VT2+1.7—6
87—081—944—01	PW1.5—3.5—0.5
87—081—808—01	PW1.7—3.5—0.25
87—081—036—01	PW2—5—0.2
87—081—498—01	PW4.7—2.6—0.25
87—067—023—01	PW6.85—8.2—0.3
87—032—019—01	STE—1.2
87—032—020—01	STE—1.5
87—441—008—01	STE—2.5

EXPLODED VIEW-3



Ref. No.	Part No.	Parts No. changed to	Description	Common Model	Q'ty
3-1	82-636-254-01		Rubber cushion		2
3-2	82-648-258-01		Collar, Motor		1
3-3	82-668-260-11		Governer stopper plate		1
3-4	82-654-472-11		Collar A, Motor		1
3-5	82-654-465-01		Rubber sheet 3—8—0.6		1
3-6	82-654-308-01		E-spring, Idler R		1
3-7	82-654-263-11		Rink, Actuathing chassis ass'y		1
3-8	82-654-470-21		Idler arm B		1
3-9	82-654-215-21		Idler ass'y		1
3-10	82-654-222-01		F, R idler ass'y		2
3-11	82-668-259-01		Gear, Decrease speed		1
3-12	82-668-261-11		Idler arm L semi ass'y B		1
3-13	82-654-393-01		E-spring, Idler L		1
3-14	82-654-301-21		Slide lever ass'y		1
3-15	82-668-248-01		Actuathing chassis B ass'y		1
3-16	82-654-272-21		Plate, cam lock		1
3-17	82-654-396-21		T-spring, Channel selector		1
3-18	82-668-228-11		Arm channel B ass'y		1
3-19~30	**82-654-340-51**		**Chassis bottom plate ass'y**		**1**
3-19	82-654-387-11		Reel R ass'y		1
3-20	82-654-374-01		Arm R, Auto lever		1
3-21	82-654-398-01		C-spring, Reel auto R		1
3-22	82-654-375-11		Reel L ass'y		1
3-23	82-654-390-01		Arm L, Auto lever		1
3-24	82-654-373-01		C-spring, Reel auto L		1
3-25	82-654-385-01		E-spring, FF lever		2
3-26	82-654-384-01		E-spring, Slide auto		1
3-27	82-654-341-41		Chassis bottom plate semi ass'y		1
3-28	82-654-362-11		T-spring, Slide lever FR		1
3-29	87-081-944-01		PW1.5—3.5—0.5		2
3-30	87-263-522-31		V + 1.7—1.8		3
3-31	82-668-226-01		Flywheel plate ass'y		1
3-32	82-654-325-21		Flywheel R ass'y		1
3-33	82-654-328-11		Flywheel L ass'y		1
3-34	82-654-309-01		Arm, Timing		1
3-35	82-654-409-01		Arm, Auto blocking		1
3-36	82-654-332-01		FF, REW lever ass'y		1
3-37	82-654-304-11		FR slide lever		1
3-38	82-654-397-11		T-spring, Main switch		1
3-39	82-654-404-11		Arm, FF turn over		1
3-40	82-654-290-21		E-spring, PLAY lever		1
3-41	82-668-247-11		Lever B, PLAY		1
3-42	82-654-270-11		E-spring, UE, REV		1
3-43	82-668-240-11		P-spring, REC		1
3-44	82-654-293-01		E-spring, REC lever		1
3-45	82-668-223-21		Lever J, REC		1
3-46	82-654-275-01		Rock plate		1
3-47	82-654-276-11		T-spring		1
3-48	82-654-280-41		T-spring, PFR lock		1
3-49	82-654-394-01		T-spring, STOP lever		1
3-50	82-668-221-21		T-spring, Auto		1
3-51	82-654-208-11		Gear, Reverse		1
3-52	82-654-206-01		Gear, Auto STOP		1
3-53	81-517-258-11		T-spring, Pinch selector A		1
3-54	82-654-412-01		E-spring, Auto blocking		1
3-55	82-654-478-01		Belt A, Main		1

■ ACCESSORIES/PACKAGE LIST

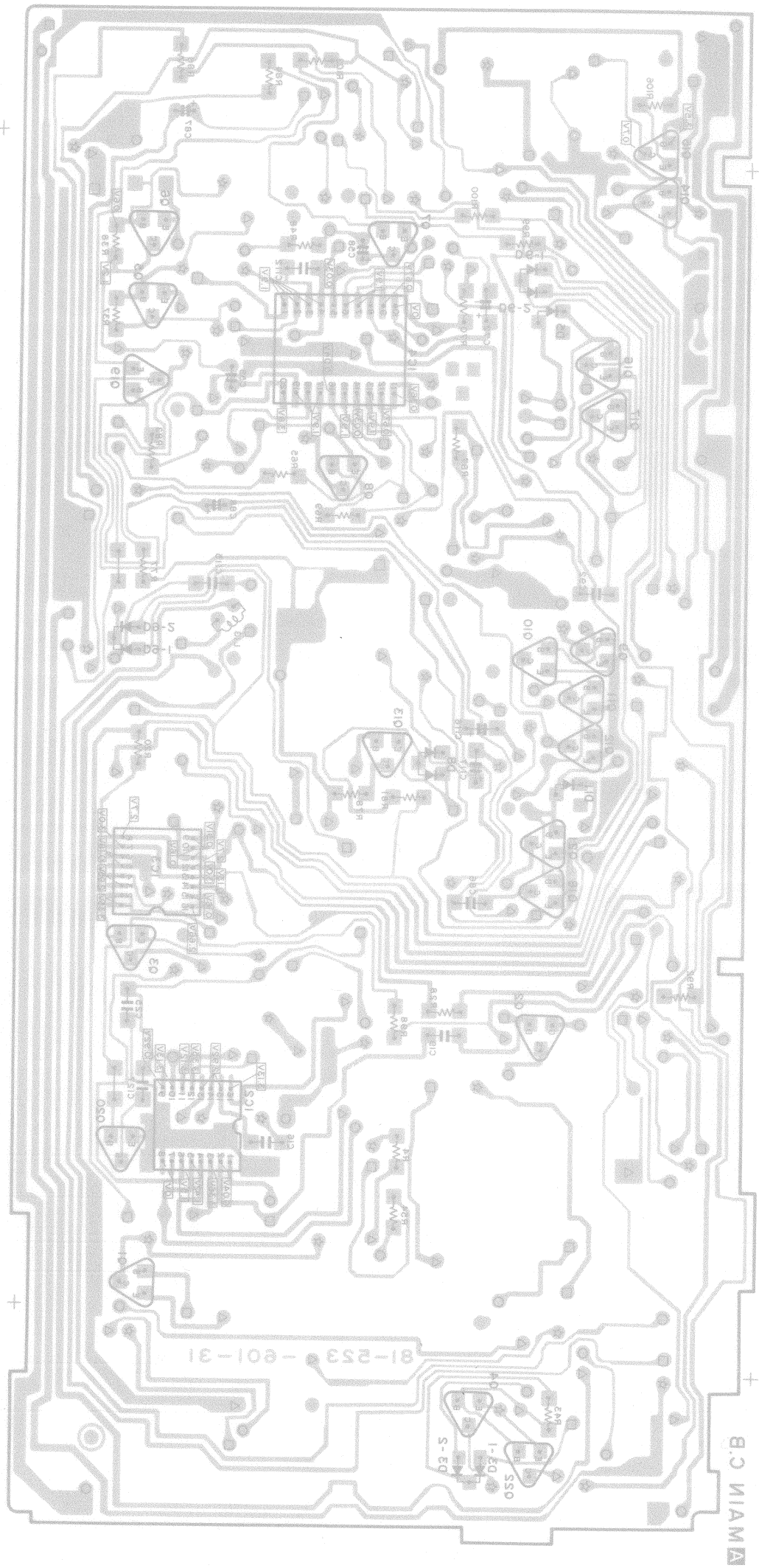
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	81-523-855-01		Printed indiv., Packing	*	1
2	81-523-852-01		Cushion A, Printed indiv.	*	1
3	81-523-853-01		Cushion B, Printed indiv.	*	1
4	81-523-858-01		Cushion C, Printed indiv.	*	1
5	87-051-133-11		Poly-vinyl sack		1
6	87-051-136-11		Poly-vinyl sack		1
7	87-057-443-01		Color label, Black		1
8	81-523-904-01		Instructions booklet	*	1
9	81-523-905-01		Label, POP	*	1
10	87-056-009-51		Distributors list (YS, YB, YGS, YZB models only)		1
11	87-056-045-01		Guarantee card U (YUS model only)		1
12	87-056-057-01		Service station list (YUS model only)		1
13	87-056-059-01		Guarantee card (YGS model only)		1
14	81-523-951-11		Carrying handle (YS, YUS, YGS models only)	*	1
15	81-523-952-11		Carrying handle (YB, YZB models only)	*	1
16	86-369-810-01		HP-M15N (Black)		1
	86-369-015-01		Pad, Ear (Black)		1
17	87-080-009-51		Belt hanger ass'y		1

☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ ☆ **MEMO** ☆

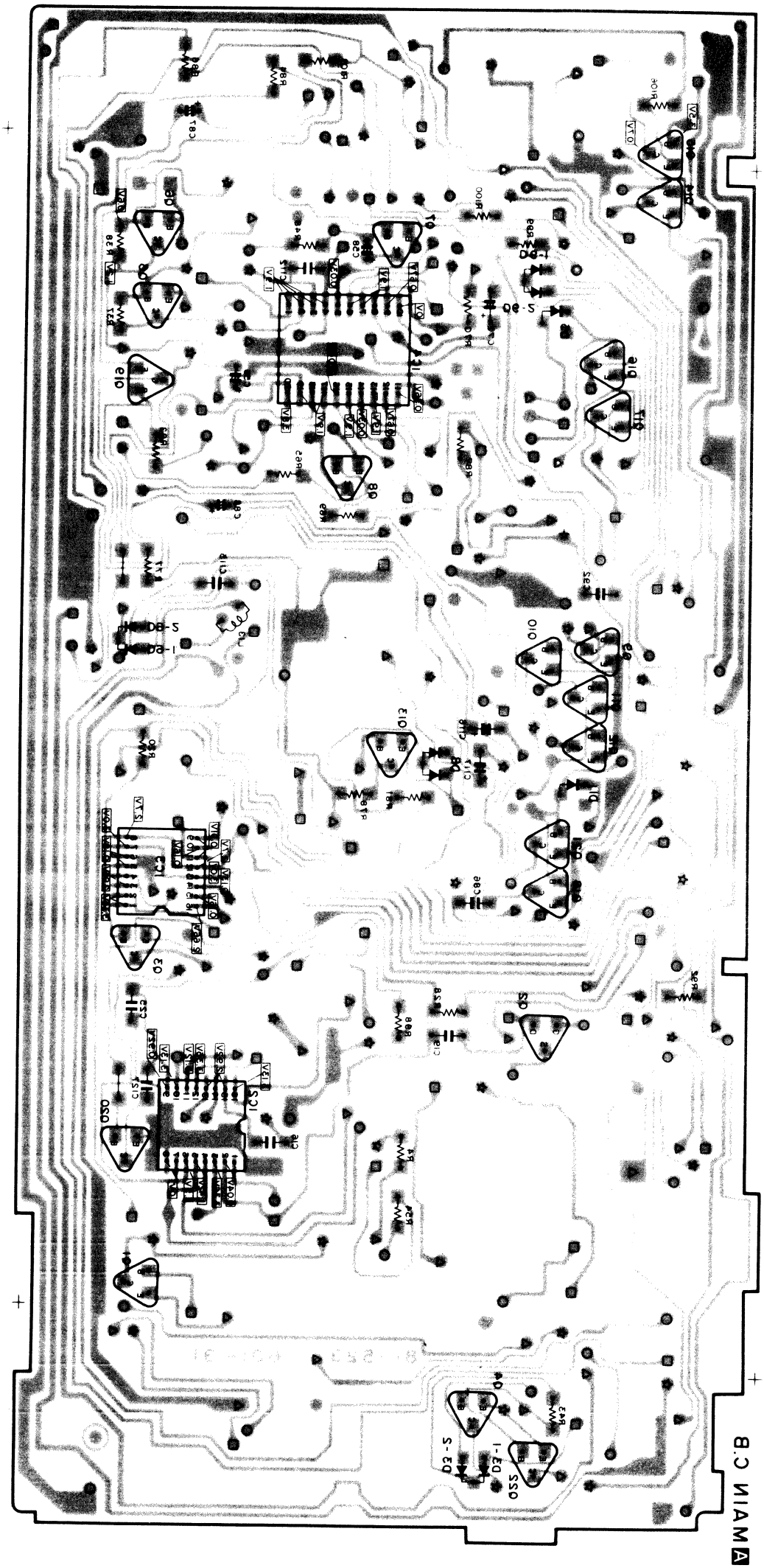
830825 (1)-Z

AIWA Co., Ltd. Tokyo Japan

Printed in japan



TO USE this pattern view, put the (+) mark upon the one of the wiring view.



MAIN C.B

TO USE this pattern view, put the (+) mark upon the one of the wiring view.

HS J110 YS, YGS, YB, YUS YUB, YZS HS-J110 YS, YGS, YB, YUS YUB, YZS

SCHEMATIC DIAGRAM

A MAIN C.B

FM RF AMP/CONV. IC1 AN7216

FM IF AMP Q1 2SC2714-O

FM IF AMP/DET
AM CONV./IF AMP/DET
IC2 TA-7687 AF

FM MPX IC3 TA-7342F

METAL SWITCHING Q9 2SC2712Y

IC4 TK10562 EQ AMP/REC AMP/ALC

PRE AMP

POWER AMP IC5 LA4180

S1-1 ~ 8 REC/PB (PB)
S2-1 ~ 3 FWD/REV (FWD)
S3-1 ~ 2 MIC-AUX/NR (MIC/OFF)
S4-1 ~ 4 TAPE/RADIO (TP)
S5 PAUSE (OFF)
S6 TAPE/OSC (LH)
S7 PLAY(OFF)
S8 FF/REW (OFF)
S9 BAND SELECTOR(FM ST)
S10 R-CH SP JACK (OUT)
S11 HP JACK(OUT)

4 5 6 7 8 9 10 11 12 13 14 15 16

FM IF AMP/DET
AM CONV./IF AMP/DET
IC2 TA-7687 AF

L6,8 AM IF Adj.

L4,7 FM IF Adj.

FM IF AMP
Q1 2SC2714-O

FM MPX
IC3
TA-7342F

S1-1 ~ 8 REC/PB (PB)
S2-1 ~ 3 FWD/REV (FWD)
S3-1 ~ 2 MIC-AUX/NR (MIC/OFF)
S4-1 ~ 4 TAPE/RADIO (TP)
S5 PAUSE (OFF)
S6 TAPE/OSC (LH)
S7 PLAY(OFF)
S8 FF/REW (OFF)
S9 BAND SELECTOR(FM ST)
S10 R-CH SP JACK (OUT)
S11 HP JACK(OUT)

FM Freq. Range Adj.

AM Tracking Adj.

AM Freq. Range Adj.

V.C.O Freq. Adj.

METAL SWITCHING
Q9
2SC2712Y

TK10562
P/REC AMP/ALC

Q7
2SA1162GR

2SD1328T
MUTING

Q11

Q12 MUTING
2SD1328-T

Q8
2SA1162GR

Q10
2SC2712Y
METAL
SWITCHING

REC

ALC

VOLUME

Q13
2SC2712Y

Q21 2SC2712Y
NOISE
REDUCTION

Q19 2SC1623-L
MONO/STEREO
SWITCHING

Q18
2SC2712-Y
NOISE REDUCTION

D8 1SS181

D11
1SS187

1SS184

D6 1SS184

Q16 2SC2712(Y)

Q17 2SC2712(Y)

D6-1
D6-2
1SS181

D5
1SS187

CP1
NJL-5141EA
TAPE RUN DETECTION

POWER AMP
IC5 LA4180

MUTE

FIN

VCC

L-CH

R-CH

4Ω

L14

L16
20T

PHONES

J1

J4
R SPEAKER

J3
DC-4.5V

UM-3
X3

S7
PLAY

S8
FF/REW

S5
PAUSE

S6-2
METAL
NOR

S3-1
MIC
AUX

S3-2
NR
OFF
ON

S4-3

S4-4

S1-5

S1-6

S11-1

S11-2

S1-7

S1-8

S4-1

S4-2

S9-1

TLR102A

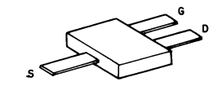
OPE
BATT

D4

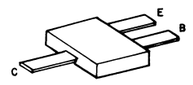
NOTES:

1) B (+) power supply
2) Signal path
   Rec path, AM signal path.
3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
   But ( ) is with AM reception or recording.
   An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
4) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
7) Ceramic capacitor symbols:
   - For temperature compensation (SL)
   - High dielectric constant system (YY)
   - High dielectric constant system (YW, YP, YZ).
   - Semiconductor ceramic
   - For temperature compensation (SH)
8) Explanation of symbols
   - Ⓜ Mylar capacitor
   - Ⓐ Aluminum solid capacitor
   - Ⓣ Tantalum capacitor
   - Chip parts
   - Chip capacitor
   - Chip tantalum capacitor
   - Chip resistor
   - Chip diode
   - Chip transistor

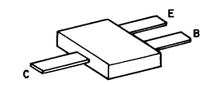
- This schematic diagram is subject to change without notice in the interests of improved performance.



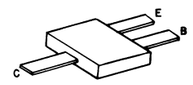
2SK211



2SC1623
2SC2712
2SC2713
2SC2714
2SC3326



2SA1162

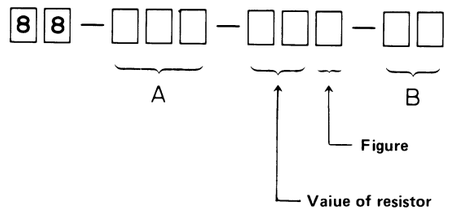


2SD1328

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
≪MAIN CIRCUIT BOARD SECTION≫		
PCB-A	81-523-601-31	Main circuit board
IC1	87-027-876-01	IC, AN7216
IC2	87-020-017-01	IC, TA-7687AF
IC3	87-020-022-01	IC, TA7342F
IC4	87-020-078-01	IC, TK-10562
IC5	87-027-711-01	IC, LA-4180
Q1	89-327-143-01	Chip transistor, 2SC2714 (O)
Q2	89-502-114-01	Chip, FET, 2SK211Y
Q3, 9, 10, 13, 14, 16, 17, 18, 20, 21	89-327-124-01	Chip transistor, 2SC2712 (Y)
Q4, 22	89-333-265-01	Chip transistor, 2SC3326A
Q5, 6	89-327-137-01	Chip transistor, 2SC2713GR-A
Q7, 8	89-111-625-01	Chip transistor, 2SA1162GR
Q11, 12, 15	89-413-284-01	Chip transistor, 2SD1328T
Q19	89-316-236-01	Chip transistor, 2SC1623L6T1
D1	87-017-004-01	Variable capacitor, SD117
D2, 4	87-020-015-01	LED, TLR102A (FM ST, OPE/BATT)
D3, 9	87-020-027-01	Chip diode, 1SS184
D5, 11	87-020-020-01	Chip diode, 1SS187
D6, 8	87-020-125-01	Chip diode, 1SS181
L1	87-007-112-01	Coil, 0.6μH
L2	87-006-059-01	FM antenna coil
L3	81-523-626-01	FM OSC coil, 4T
L4	87-008-270-01	FM IFT 5SH
L5	81-523-602-01	AM bar antenna coil
L6	87-008-272-01	AM IFT coil
L7	87-008-269-01	Quad coil, 5S
L8	87-008-268-01	AM DET coil
L9	87-007-130-01	AM OSC coil
L10	81-523-605-01	Bias OSC coil
L11, 12, 15	87-003-040-11	Choke coil, 47μH
L13, 14	87-003-089-01	Choke coil, 47μH
L16	81-523-629-01	Coil 20T
VC1~4, TC1~4	87-011-152-01	PVC
CF1, 2	87-008-229-01	FM Ceramic filter, MA5U
CF3	87-008-254-01	AM Ceramic filter, (468kHz)
CP1	87-027-644-01	Photo sensor, NJL-5141EA
BPF	87-030-092-01	Band pass filter, BPFMB8
J1	87-049-298-01	Jack, 3.5φ ST W/switch (PHONES)
J2	87-049-303-01	Jack, 3.5φ ST (MIC/AUX)
J3	87-049-312-01	Jack (DC JACK)
J4	87-049-309-01	Jack, 3.5φ W/switch (R SPEAKER)
S1	81-523-608-01	Slide switch (REC/PB)
S2	81-503-604-01	Slide switch (FWD/REV)
S3, 6	87-031-794-01	Slide switch (NR: ON/OFF, AUX/MIC, TAPE, OSC)
S4	87-031-796-01	Slide switch (RADIO/TAPE)
S5	87-031-793-01	Slide switch (PAUSE)
S9	87-031-795-01	Slide switch (BAND SELECTOR)
VR1	87-021-793-01	Volume, 20kΩ-A (VOLUME)
SFR1	87-021-677-01	Semi-fixed resistor, 10kΩ-B
PIN1	84-700-684-01	Pin, 2P
		< **Capacitors** >
C1, 3, 9, 10, 11, 12, 16, 17, 19, 20, 47, 48, 92, 93, 95, 119, 127, 133	87-015-819-01	0.01μF Chip capacitor
C2	87-015-756-01	22pF Chip capacitor
C4, 5	87-015-746-01	5pF Chip capacitor
C6	87-015-818-01	0.0047μF Chip capacitor
C7	87-015-755-01	20pF Chip capacitor
C8, 13	87-015-744-01	3pF Chip capacitor
C14, 52, 53, 91, 107, 108, 109, 110, 111	87-010-082-01	220μF 4V Electrolytic
C15, 18, 22, 60, 61, 63, 64, 65	87-015-883-01	0.022μF Chip capacitor
C21	87-015-751-01	10F Chip capacitor, SK (K)
C23, 43, 44, 58, 59, 83	87-010-076-01	22μF 6.3V Electrolytic
C24, 34, 73, 87, 88, 89, 122	87-010-071-01	1μF 50V Electrolytic
C25	87-015-768-01	220pF Chip capacitor
C26, 28, 37, 38, 80	87-010-074-01	4.7μF 35V Electrolytic
C27, 82	87-015-834-01	0.033μF 25V Electrolytic
C29	87-010-073-01	3.3μF 50V Electrolytic
C31, 94, 96	87-015-975-01	220μF 6.3V Electrolytic
C40, 114	87-015-785-01	0.1μF 25V Chip capacitor
C32, 99, 101, 102, 130	87-010-079-01	100μF 6.3V Electrolytic
C33	87-014-057-81	1000pF PP
C35, 36	87-015-632-01	0.015μF Chip capacitor
C39, 50, 51, 54, 55, 124, 125	87-010-067-01	0.1μF 50V Electrolytic
C41, 42	87-015-775-01	820pF Chip capacitor
C45	87-015-772-01	470pF Chip capacitor SL, K
C56, 57, 66, 67, 84	87-010-072-01	2.2μF 50V Electrolytic
C68, 69, 81, 90	87-010-075-01	10μF 16V Electrolytic
C70, 71	87-015-766-01	150pF Chip capacitor
C116, 117	87-015-932-01	0.47μF 50V Chip tantalum
C72	87-015-933-01	1μF 10V Chip tantalum
C74, 75	87-010-068-01	0.22μF 50V Electrolytic
C76, 77	87-015-628-01	0.0018μF Chip capacitor
C78, 79	87-015-770-01	330pF Chip capacitor
C85, 86	87-015-837-01	0.068μF Chip capacitor
C100	87-015-959-01	100μ/3 Chip capacitor
C103, 104	87-010-078-01	47μF 6.3V Electrolytic
C105, 106	87-015-376-01	1μF 10V Tantalum
C115	87-015-934-01	2.2μ Chip tantalum
C49, 118	87-015-986-01	10μF 6.3V Tantalum
C112, 113	87-015-756-01	22pF Chip capacitor
C120, 121, 123	87-015-627-01	0.001μF Chip capacitor
≪MOTOR CIRCUIT BOARD SECTION≫		
M	86-640-800-01	Motor ass'y (W/PCB-C)
≪MISCELLANEOUS≫		
RPH	87-046-234-01	REC/PB head
EH	87-046-232-01	Erase head
ECM	87-041-037-01	ECM
S7	87-031-719-11	Leaf switch (PLAY)
S8	87-031-720-01	Leaf switch (FF/REW)
SP1, 2	81-523-603-01	Speaker
	81-523-622-01	Cord speaker Ass'y (R-CH SP)
	87-043-070-01	Whip antenna
CON1	81-533-607-01	Connector, Ass'y, 2P

Chip resistor parts cord



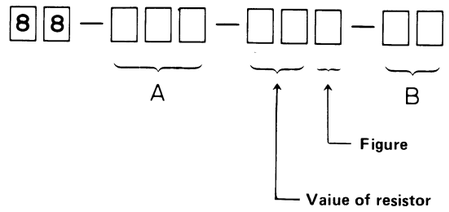
Chip resistor

Powre vaiue	Type	A	B
1/8W	Chip in magazine	129	01
	Chip within tape	129	08

☆ **MEMO**

Symbol No.	Part No.	Description
C6	87-015-818-01	0.0047μF Chip capacitor
C7	87-015-755-01	20pF Chip capacitor
C8, 13	87-015-744-01	3pF Chip capacitor
C14, 52, 53, 91, 107, 108, 109, 110, 111	87-010-082-01	220μF 4V Electrolytic
C15, 18, 22, 60, 61, 63, 64, 65	87-015-883-01	0.022μF Chip capacitor
C21	87-015-751-01	10F Chip capacitor, SK (K)
C23, 43, 44, 58, 59, 83	87-010-076-01	22μF 6.3V Electrolytic
C24, 34, 73, 87, 88, 89, 122	87-010-071-01	1μF 50V Electrolytic
C25	87-015-768-01	220pF Chip capacitor
C26, 28, 37, 38, 80	87-010-074-01	4.7μF 35V Electrolytic
C27, 82	87-015-834-01	0.033μF 25V Electrolytic
C29	87-010-073-01	3.3μF 50V Electrolytic
C31, 94, 96	87-015-975-01	220μF 6.3V Electrolytic
C40, 114	87-015-785-01	0.1μF 25V Chip capacitor
C32, 99, 101, 102, 130	87-010-079-01	100μF 6.3V Electrolytic
C33	87-014-057-81	1000pF PP
C35, 36	87-015-632-01	0.015μF Chip capacitor
C39, 50, 51, 54, 55, 124, 125	87-010-067-01	0.1μF 50V Electrolytic
C41, 42	87-015-775-01	820pF Chip capacitor
C45	87-015-772-01	470pF Chip capacitor SL, K
C56, 57, 66, 67, 84	87-010-072-01	2.2μF 50V Electrolytic
C68, 69, 81, 90	87-010-075-01	10μF 16V Electrolytic
C70, 71	87-015-766-01	150pF Chip capacitor
C116, 117	87-015-932-01	0.47μF 50V Chip tantalum
C72	87-015-933-01	1μF 10V Chip tantalum
C74, 75	87-010-068-01	0.22μF 50V Electrolytic
C76, 77	87-015-628-01	0.0018μF Chip capacitor
C78, 79	87-015-770-01	330pF Chip capacitor
C85, 86	87-015-837-01	0.068μF Chip capacitor
C100	87-015-959-01	100μ/3 Chip capacitor
C103, 104	87-010-078-01	47μF 6.3V Electrolytic
C105, 106	87-015-376-01	1μF 10V Tantalum
C115	87-015-934-01	2.2μ Chip tantalum
C49, 118	87-015-986-01	10μF 6.3V Tantalum
C112, 113	87-015-756-01	22pF Chip capacitor
C120, 121, 123	87-015-627-01	0.001μF Chip capacitor
≪MOTOR CIRCUIT BOARD SECTION≫		
M	86-640-800-01	Motor ass'y (W/PCB-C)
≪MISCELLANEOUS≫		
RPH	87-046-234-01	REC/PB head
EH	87-046-232-01	Erase head
ECM	87-041-037-01	ECM
S7	87-031-719-11	Leaf switch (PLAY)
S8	87-031-720-01	Leaf switch (FF/REW)
SP1, 2	81-523-603-01	Speaker
	81-523-622-01	Cord speaker Ass'y (R-CH SP)
	87-043-070-01	Whip antenna
CON1	81-533-607-01	Connector, Ass'y, 2P

Chip resistor parts cord

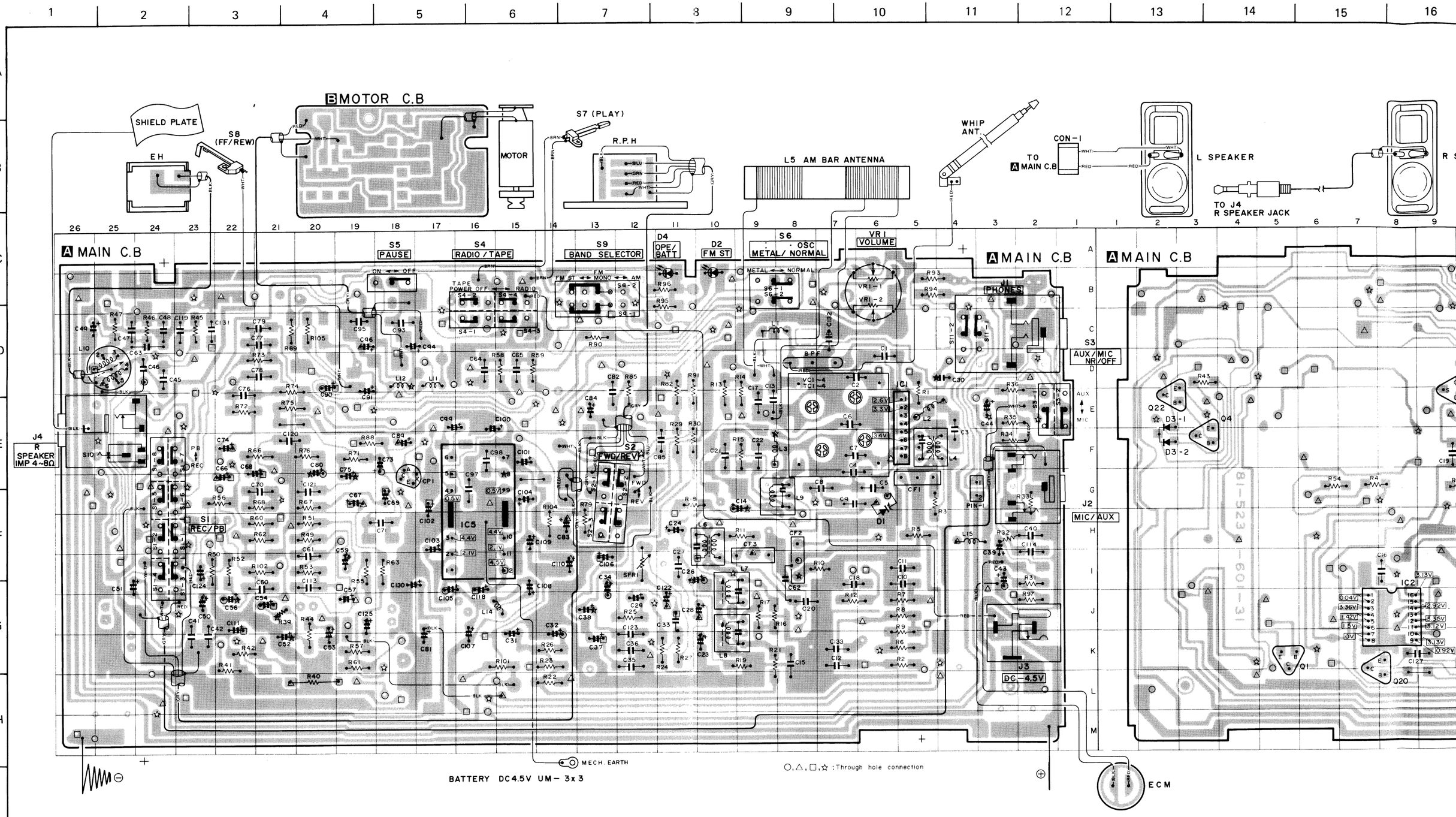


Chip resistor

Powre vaiue	Type	A	B
1/8W	Chip in magazine	129	01
	Chip within tape	129	08

☆ **MEMO** ☆

WIRING

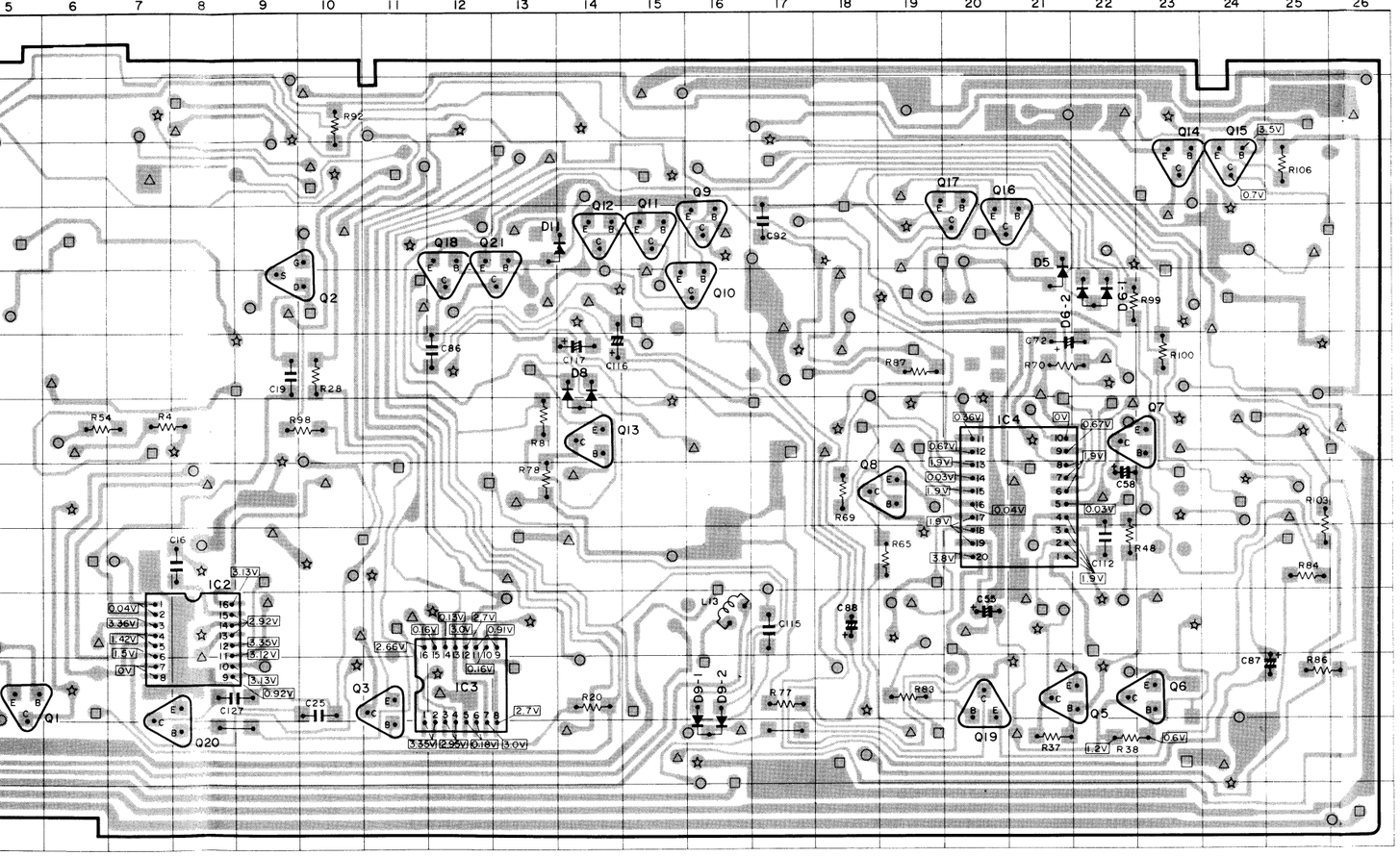

SHIELD PLATE
S8 (FF/REW)
EH
BMOTOR C.B
MOTOR
S7 (PLAY)
R.P.H
L5 AM BAR ANTENNA
WHIP ANT.
CON-1
TO AMAIN C.B
L SPEAKER
TO J4 R SPEAKER JACK
AMAIN C.B
S5 PAUSE
S4 RADIO/TAPE
S9 BAND SELECTOR
D4 OPE/BATT
D2 FM ST
S6 OSC METAL/NORMAL
VR1 VOLUME
PHONES
S3 AUX/MIC NR/OFF
J4 R SPEAKER IMP 4~8Ω
S1 REC/PB
S2 FWD/REV
IC5
IC2
Q22
Q4
Q1
Q20
J2 MIC/AUX
J3 DC-4.5V
MECH. EARTH
BATTERY DC4.5V UM-3x3
○,△,□,☆ : Through hole connection
ECM
81-523-601-131

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

R SPEAKER

JACK

5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

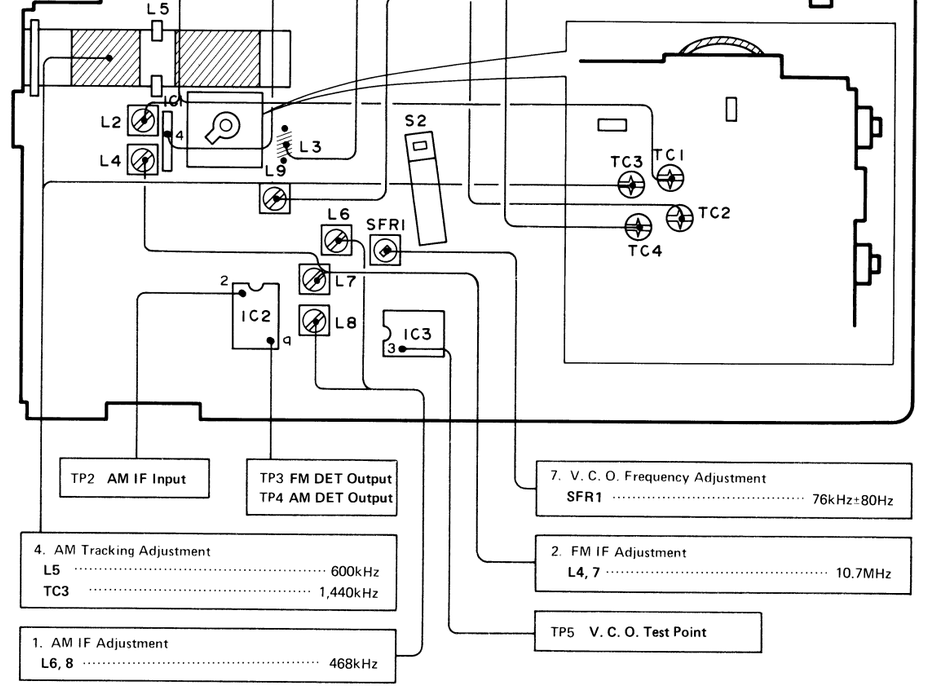


5. FM Freq. Range Adjustment
L3 ..... 87.5MHz
TC2 ..... 109.0MHz

6. FM Tracking Adjustment
L2 ..... 88.0MHz
TC1 ..... 108MHz

3. AM Freq. Range Adjustment
L9 ..... 520kHz
TC4 ..... 1,650kHz

TP1 FM IF Input



TP2 AM IF Input

TP3 FM DET Output
TP4 AM DET Output

7. V. C. O. Frequency Adjustment
SFR1 ..... 76kHz±80Hz

4. AM Tracking Adjustment
L5 ..... 600kHz
TC3 ..... 1,440kHz

2. FM IF Adjustment
L4, 7 ..... 10.7MHz

1. AM IF Adjustment
L6, 8 ..... 468kHz

TP5 V. C. O. Test Point